

## Calculus 2

### *Limits for Exponentials*

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Perform the following limits

1.  $\lim_{x \rightarrow \infty} 4^x$

2.  $\lim_{x \rightarrow -\infty} 4^x$

3.  $\lim_{x \rightarrow \infty} \left(\frac{1}{4}\right)^x$

4.  $\lim_{x \rightarrow -\infty} \left(\frac{1}{4}\right)^x$

5.  $\lim_{x \rightarrow \infty} 4^{-x}$

6.  $\lim_{x \rightarrow -\infty} 4^{-x}$

7.  $\lim_{x \rightarrow -\infty} e^{-x}$

8.  $\lim_{x \rightarrow \infty} e^{-x}$

9.  $\lim_{x \rightarrow 4} e^{-x}$

10.  $\lim_{x \rightarrow -4} e^{-x}$

11.  $\lim_{x \rightarrow -2} e^{-x}$

12.  $\lim_{x \rightarrow 2} e^{-x}$

13.  $\lim_{x \rightarrow 1} e^{2\pi x}$

14.  $\lim_{x \rightarrow -2} e^{2\pi x}$

15.  $\lim_{x \rightarrow \infty} e^{-x^2}$

16.  $\lim_{x \rightarrow -\infty} e^{-x^2}$

17.  $\lim_{x \rightarrow -\infty} e^{-x^3}$

18.  $\lim_{x \rightarrow \infty} e^{-x^3}$

19.  $\lim_{x \rightarrow \infty} 1.1^{-x^2}$

20.  $\lim_{x \rightarrow -\infty} 1.1^{-x^2}$

21.  $\lim_{x \rightarrow (\pi/2)^+} 0.9^{\tan x}$

22.  $\lim_{x \rightarrow (\pi/2)^-} 0.9^{\tan x}$

23.  $\lim_{x \rightarrow \pi/2} 0.9^{\tan x}$

24.  $\lim_{x \rightarrow \pi/2} 1.9^{\tan x}$

25.  $\lim_{x \rightarrow 0^+} e^{\frac{1}{x}}$

26.  $\lim_{x \rightarrow 0^-} e^{\frac{1}{x}}$

$$27. \lim_{x \rightarrow 0^+} e^{-\frac{1}{x}}$$

$$28. \lim_{x \rightarrow 0^-} e^{-\frac{1}{x}}$$

$$29. \lim_{x \rightarrow 0} e^{-\frac{1}{x}}$$

$$30. \lim_{x \rightarrow 1} e^{-\frac{1}{x}}$$

$$31. \lim_{x \rightarrow -1} e^{-\frac{1}{x}}$$

$$32. \lim_{x \rightarrow -2} e^{-\frac{1}{x}}$$

$$33. \lim_{x \rightarrow 0^-} 10^{-\frac{1}{x}}$$

$$34. \lim_{x \rightarrow 0^+} 10^{-\frac{1}{x}}$$

$$35. \lim_{x \rightarrow 2} e^{\frac{1}{x}}$$

$$36. \lim_{x \rightarrow 2} e^{-\frac{1}{x}}$$

$$37. \lim_{x \rightarrow 1^-} \left(\frac{3}{4}\right)^{\frac{1}{x-1}}$$

$$38. \lim_{x \rightarrow 1^+} \left(\frac{3}{4}\right)^{\frac{1}{x-1}}$$

$$39. \lim_{x \rightarrow \frac{\pi}{2}} 0.01^{\sec x}$$

$$40. \lim_{x \rightarrow -\frac{\pi}{2}} 0.01^{\sec x}$$

$$41. \lim_{x \rightarrow \frac{\pi}{2}} 1.01^{\sec x}$$

$$42. \lim_{x \rightarrow -\frac{\pi}{2}} 1.01^{\sec x}$$

$$43. \lim_{x \rightarrow (\pi/2)^-} 1.01^{\csc x}$$

$$44. \lim_{x \rightarrow (\pi/2)^+} 1.01^{\csc x}$$

$$45. \lim_{x \rightarrow (\pi/2)^+} 1.01^{\sin x}$$

$$46. \lim_{x \rightarrow (\pi/2)^+} 1.01^{\cos x}$$

$$47. \lim_{x \rightarrow (\pi/2)^-} 1.01^{\cos x}$$

$$48. \lim_{x \rightarrow (\pi/2)^+} 1.01^{\cos x}$$

$$49. \lim_{x \rightarrow \pi} e^{\csc x}$$

$$50. \lim_{x \rightarrow -\pi} e^{\csc x}$$